Space Weather Forecast

Issued on Tuesday, 26 July 2022 at 13:05 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar Activity is currently Very Low, with only background flares observed. This is despite nine active regions on the Earth-facing disc, seven of which are numbered. The most active regions included a small sunspot region soon to rotate off the Earth-facing disc on the northwest limb, and a new region that rotated onto the northeast limb. The only other region of note is in the southwest, as this saw some development of small sunspots. All other regions remained small and simple. No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Solar winds were mainly slightly elevated to background, with just a slight enhancement observed overnight. The magnetic field carried by the wind was mostly weak, but did have a period where its important north-south component rotated into a weakly negative (southward) direction. Geomagnetic activity was mostly Quiet, but had one Unsettled interval (Kp3) at 26/0000-0300 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain Very Low to Low with only a slight chance of moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Slightly elevated solar winds are likely to ease to background. There is a chance of slight enhancements on day 2 (27th) or early day 3 (28th) from the arrival of a weak fast wind originating from a small coronal hole, along with a further slight enhancement possible late day 4 (29th) due to the arrival of a stronger coronal hole sourced fast wind. Mainly Quiet geomagnetic activity is expected, with a chance of Unsettled intervals. Fast wind arrival late day 4 (29th) may increase activity to Active with a very slight chance of G1/Minor Storms

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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